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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,917	12/31/2003	Kun-Ching Chen	250123-1020	1406
24504	7590	09/06/2005		
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			EXAMINER LEE, BENNY T	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H:9

Office Action Summary

Application No.

10/749,917

Applicant(s)

CHEN ET AL.

Examiner

Benny Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April & 1 August 2005.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) 8, 9, 19 and 20 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1, 5, 6; 7, 13-15; 16-18 is/are rejected.
 7) ☒ Claim(s) 2-4; 10-12 is/are objected to.
 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election without traverse of Group I, Species II in the reply filed on 25 April & 1 August 2005 is acknowledged.

However, claims 17 & 18, which were not indicated by applicants' as belonging to the elected species, have been determined by the examiner to be properly grouped with the elected species. Furthermore, claims 19 & 20, which were indicated by applicants' as belonging to the elected species, have been determined by the examiner to not belong with the elected species and thus have been withdrawn.

Claims 8, 9, 19, 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 25 April & 1 August 2005.

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: At the following occurrences, note that --a-- has been inserted prior to "stable": Page 1, line 10; page 3, line 5; page 7, line 14; page 9, lines 1 & 6. Page 2, lines 1, 12, note that "Of which, the" should be rewritten as --The--; lines 22, 23, "in turn affects signal transmission quality greatly" should be rephrased as --in turn greatly affects signal quality transmission--. Page 3, lines 6, 7, note that "All of this begs improvement" should be rephrased for clarity; line 18, note that --having:-- should follow "substrate". Page 5, line 1, note that "further another" should be rephrased as --another further--.

The disclosure is objected to because of the following informalities: Page 2, line 3, note that a --,-- should follow " ϵ_r " for grammatical correctness; line 7, note that " $V_p \propto C/(\epsilon_{eff})^{1/2}$ " is vague in meaning and needs clarification. Page 3, line 2, note that "are interfered by one another" is vague in meaning and needs clarification; line 4, note that "ground plane106" needs to be separated for clarity of description; line 10, note that "views of the aforesaid" should be rephrased as --view of the above said-- for a proper characterization Page 8, lines 21, 22 & page 10, lines 12-14, note that reference to the "top superficial measure" and the "bottom superficial measure" are respectively vague in meaning and need clarification. Page 9, lines 17, 18, note that "416" & "616", respectively, should correctly be --420--for consistency with figure 4.

Appropriate correction is required.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 15, note that "the top superficial measure" and "the bottom superficial measure" lack strict antecedent basis. Moreover, note that it is unclear, even in light of the specification, what characterizes "the (top/bottom) superficial measure". Clarification is needed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by

Mansour, Mizuno et al, Babbitt et al or Ishikawa.

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Note that each of the above references discloses a substrate comprising: a first dielectric layer (46 in Mansour; 19 in Mizuno et al; the low dielectric constant material in Babbitt et al; 1 in Ishikawa) with an opening therein (60 in Mansour; 19a in Mizuno; unlabeled opening in Babbitt et al; the grooves in substrate 1 of Ishikawa); a second low dielectric constant dielectric layer (38 in Mansour; 20 in Mizuno et al; 1 in Babbitt et al; 5 In Ishikawa) disposed within the opening; and a high frequency signal transmission line (36 in Mansour; 12 in Mizuno; 2 in Babbitt et al; 3 in Ishikawa) disposed on the second dielectric layer.

Claims 1, 5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Martel et al.

Martel et al discloses a high frequency substrate comprising a first metal layer (1); a high dielectric constant layer (5) disposed over conductor layer (1); a second metal layer (2) disposed over dielectric layer (5); a second low dielectric constant (i.e. polytetrafluoroethylene of dielectric constant less than 4) layer (6) disposed over the conductor layer (2) and a high frequency signal line (3) disposed over the dielectric layer (6).

Claims 1,6; 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ishikawa.

Ishikawa discloses a high frequency substrate comprising: a first metal layer (2); a semi-conductive layer (1) disposed over metal layer (2); a second metal layer (4) disposed over semi-conductive layer (1); a second low dielectric constant (e.g. polyimide of dielectric constant less than 4) disposed over the metal layer (4); and a high frequency signal conductor (3) disposed on the dielectric layer (5).

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martel et al in view of Mansour.

Martel, as described in the above rejection, discloses the following sequence of features: a first metal layer (1); a first high dielectric constant dielectric layer (5) disposed over the first metal layer; a second metal layer (4) disposed over the first substrate; a second low dielectric constant (i.e. polytetrafluoroethylene with dielectric constant less than 4). However, Martel et al differs from the claimed invention in that it lacks an opening in the second dielectric layer where a third dielectric substrate where a signal transmission line is disposed.

Mansour discloses an exemplary teaching of a dielectric layer having a planar signal transmission line is disposed thereon. Note that the substrate with the transmission line is

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disposed in a corresponding opening of a dielectric substrate, such as to provide the effective signal transmission function.

Accordingly, it would have been obvious to have modified the layers (6, 3) of Martel et al with a signal line and substrate as taught by Mansour. Such a modification would have been considered an obvious substitution of art recognized equivalent transmission line configurations, thereby suggesting the obviousness of such a modification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benny Lee whose telephone number is 571 272 1764.

A handwritten signature in black ink that reads "Benny Lee". The signature is written in a cursive, flowing style.

B. Lee

BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817